Fig.1

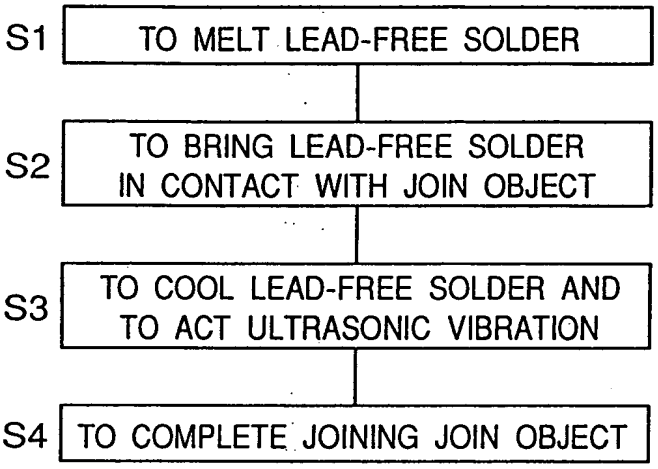

S1
TO MELT LEAD-FREE SOLDER
S2
TO BRING LEAD-FREE SOLDER IN CONTACT WITH JOIN OBJECT
S3
TO COOL LEAD-FREE SOLDER AND TO ACT ULTRASONIC VIBRATION
S4
TO COMPLETE JOINING JOIN OBJECT

Fig.2

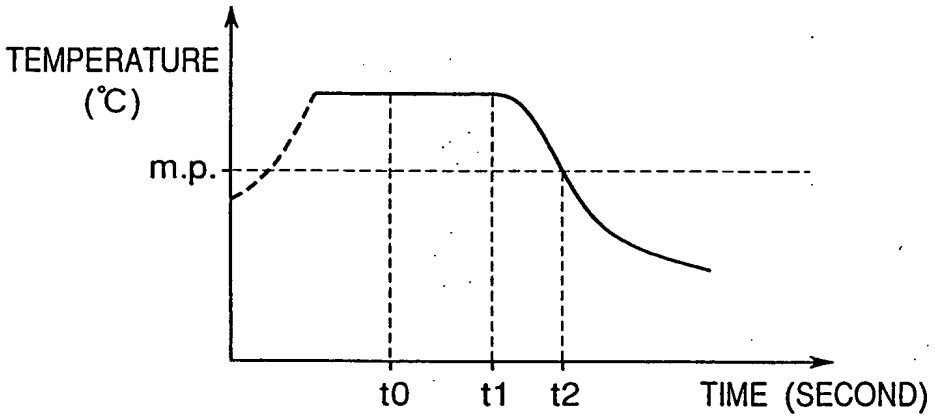

TEMPERATURE
(℃)
m.p.
t0
t1
t2
TIME (SECOND)

Fig.3

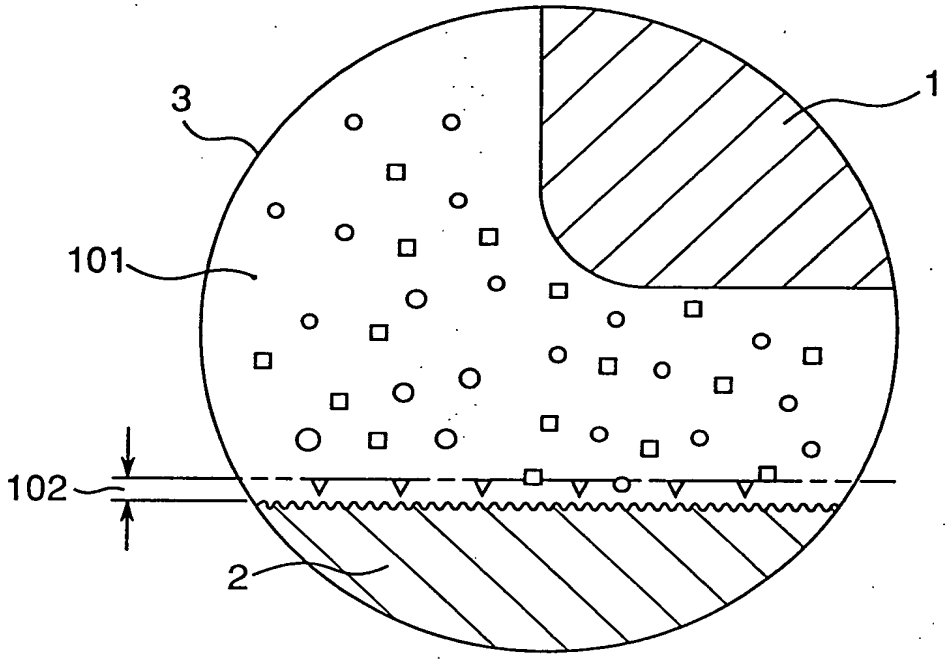

3
1
101
102
2

Fig.4

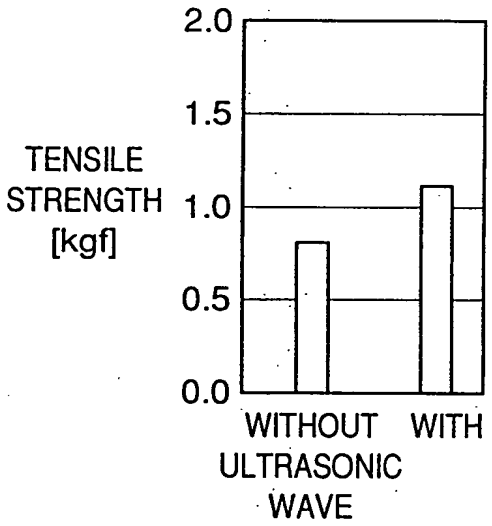

2.0
1.5
1.0
0.5
0.0
TENSILE STRENGTH [kgf]
WITHOUT ULTRASONIC WAVE
WITH

Fig.5

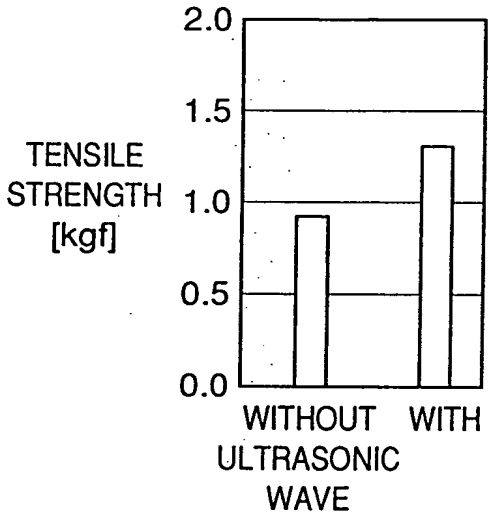

2.0
1.5
1.0
0.5
0.0
TENSILE STRENGTH [kgf]
WITHOUT ULTRASONIC WAVE
WITH

Fig.6

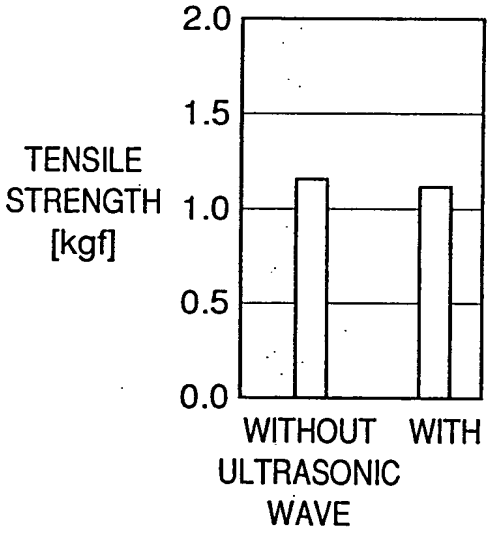

2.0
1.5
1.0
0.5
0.0
TENSILE STRENGTH [kgf]
WITHOUT ULTRASONIC WAVE
WITH

Fig. 7

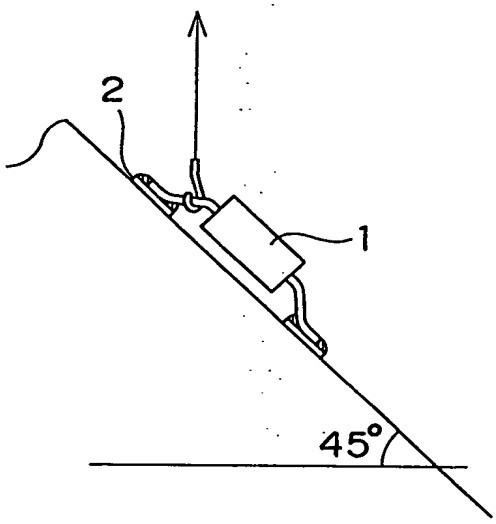


Fig.8

